1901MNRAS..61..616A

A study of the diagram shows the following identities :—

Arequipa.	Cape.
c	E
d	C
e	—
f	F
g	D

It is already evident that none of the stars E, C, F, and D belong to the system of *α Centauri*. D, which is evidently equal to the Arequipa *g*, has also been measured at Sydney, viz.—

1896·5 267°·2 82″·5 Sellors 3n

and the change between this and the Cape measures is due to the proper motion of *α Centauri* (3″·688 towards 281°·5). The star *e* was not observed here.

Royal Observatory, Cape of Good Hope:
1901 *January* 9.

New Form of Reflecting Telescope. By Charles Anthony, jun.

If the writer may be allowed to express his opinion on the best forms of mounting for refracting telescopes he would certainly say that for small and medium-sized ones he considers the movable elbow form to be the best, the observer's position being so eminently comfortable and convenient, and the loss by reflection being limited to one mirror in place of the two required in the original form of telescope coudé.

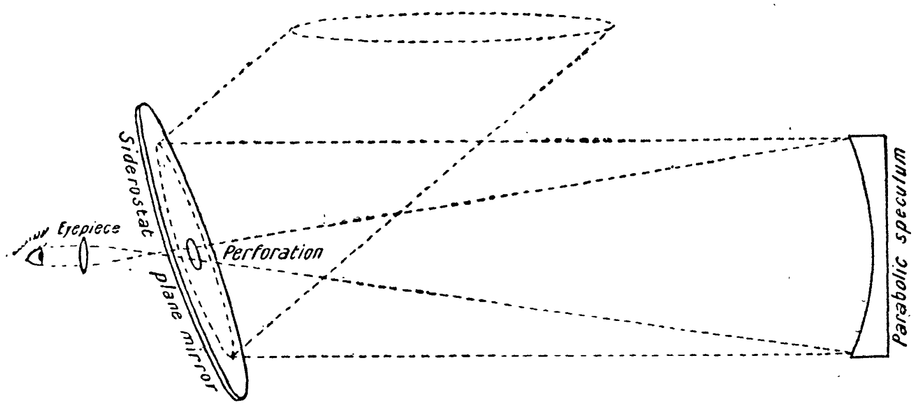
For large refractors the use of a siderostat, as applied in the large Gautier telescope at Paris, appears by far the best arrangement yet devised. The optical disadvantage is limited, as in the movable elbow form, to one reflection, a point more than compensated for by the observer's easy position.

The mechanical advantages are palpable, the unwieldy tube remaining fixed or being entirely dispensed with ; the portion to be driven by clockwork is thus limited to the plane mirror. The housing of such a telescope is likewise a much easier and cheaper matter than that of a great equatorial.

On the other hand, the improvement in the mounting of great reflectors appears to the writer to have lagged behind sadly in recent years. He therefore begs to bring forward an application of the siderostat, which appears to him to carry with it several concomitant advantages, making it a method even more

1901MNRAS..61..616A

satisfactory for great reflectors than refractors. The idea illustrated schematically in the accompanying figure is briefly as follows :—



The speculum is mounted facing the siderostat plane mirror at a distance approximately equal to its focal length from the centre of the latter.

The plane mirror is perforated through its centre, thus allowing the image formed by the speculum to be examined and magnified by an ocular placed immediately behind the siderostat without further reflection by flat or small mirror, as in the Newtonian, Gregorian, or Cassegrainian form of instrument. This method of mounting in the case of reflectors, it will be seen, does not labour under the disadvantage of introducing additional reflections as in the refractor, reflection at the surface of the large plane siderostat mirror simply taking the place of that due to the usual flat or small mirror. It leads to the same comfort in observing, and is for the following reasons especially advantageous in the reflecting form of telescope.

The economy in mounting and housing is very great, as already pointed out in the case of refractors; and this would lead to the construction of reflectors of greater focal length in proportion to aperture, with the consequent improvement of their definition due to the elimination of the Schaeberlian aberration, which has, in consequence of the shortness of focus necessitated by exigencies of mounting, been only too much in evidence in most recently constructed large reflectors.

Further, the fixing of the speculum in a constant position overcomes the hitherto almost insurmountable difficulty of its flexure under its own weight when moved.

The plane mirror may be mounted as a cœlostat, but at the cost of some inconvenience. It will probably be found better to retain the siderostat method of mounting, modified by some such ingenious device for the mechanical compensation of the rotation of the field as suggested by Professor H. H. Turner in *Monthly Notices*, vol. lxi. p. 122, and H. C. Plummer on p. 402.

This method of mounting, admittedly good for great refractors, appears, therefore, to the writer even better adapted to reflectors, if modified as suggested by the piercing of the plane mirror, thus permitting of the elimination of the usual small flat or mirror; and he hopes to hear of its application in the near future in the construction of the next great reflector, which is to wrest the supremacy too long held in these latter days by the giant refractors.

In conclusion, he would point out that should it be objected that the close proximity of the observers to the plane mirror might impair the definition, this inconvenience can be overcome with little loss of light by the use of a long eyepiece constructed on the plan of a compound microscope, or by the use of a Barlow lens.

1901 *June* 19.

Note in Reply to Mr. H. C. Plummer's Paper (*Monthly Notices*, vol. lxi. pp. 368–375). By B. Cookson.

Mr. Plummer has pointed out that in the expression deduced on p. 136 for the weight of an observation-equation of a meteor the Q term should be non-existent. As this term is generally small compared with the P term, the weights will be but little altered by its omission, and consequently the values of the unknowns in the equations of condition, which were originally derived, will be only very slightly modified. In order to see how far this is true, some of the original sets of equations have been resolved with the corrected weights, and it is found that in no case is the probable error of beginning and end of path changed by more than 0°·02—a quite insignificant quantity. In the most unfavourable case the coordinates of the radiant are changed by just one-half of their probable error, but in other cases by less than one-fifth of their probable error. The conclusions of the paper are therefore in no way affected. The correct expression for the weight is D^2/P, as indicated by Mr. Plummer, and the quantities printed in italics in the table in my paper are superfluous.

On the Accuracy of Photographic Measures: being a Discussion of a recent Paper by M. Loewy. By H. C. Plummer, M.A.

1. In the eighth Circular of the Conférence Astrophotographique Internationale, recently published, M. Loewy has recorded certain series of measurements on a photographic plate which have been designed and carried out in a definitely experimental spirit. On this material, which is beyond all